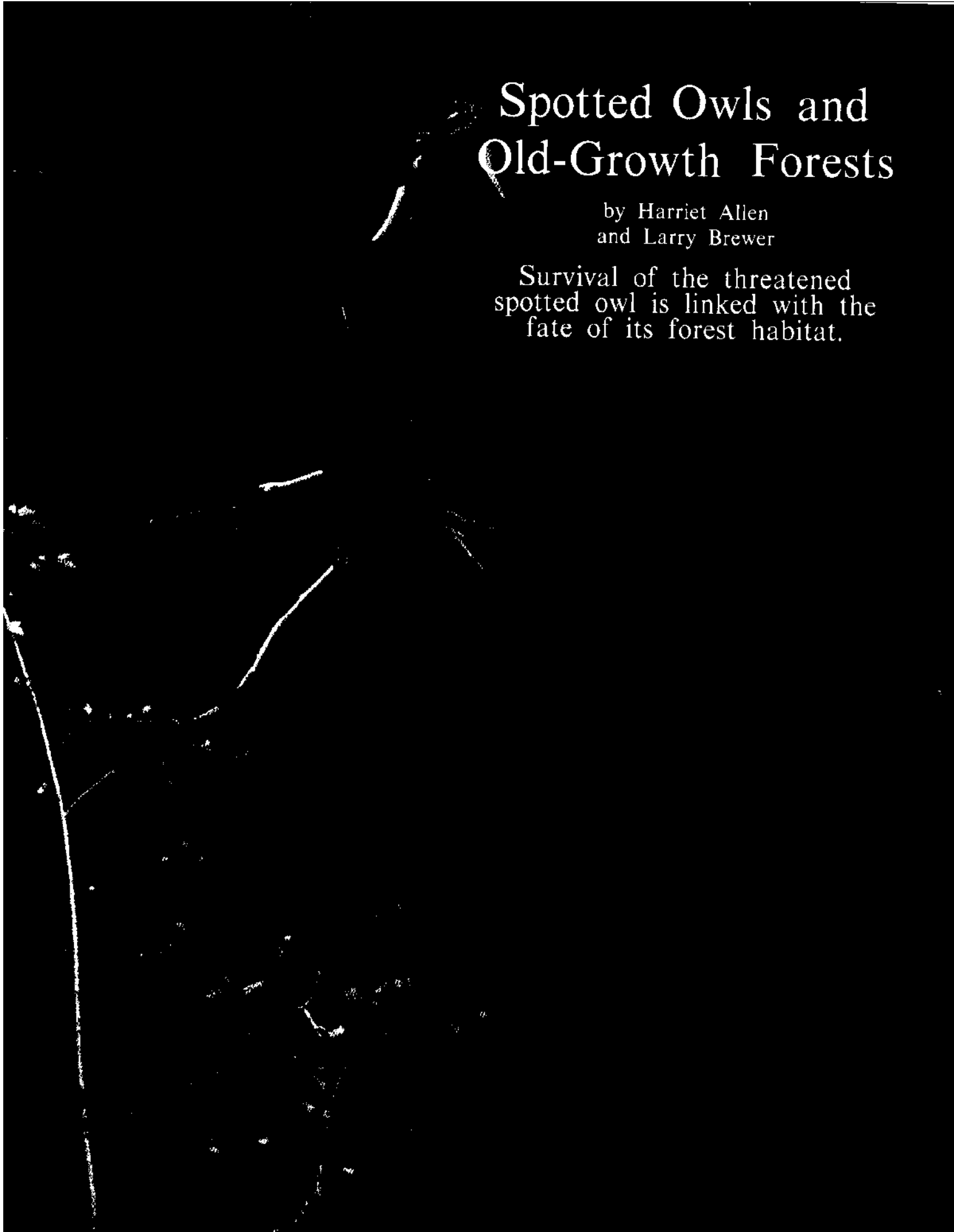


Spotted Owls and Old-Growth Forests

by Harriet Allen
and Larry Brewer

Survival of the threatened spotted owl is linked with the fate of its forest habitat.

The northern spotted owl evolved in the Pacific Northwest's lowland coniferous forests of Douglas fir, western hemlock, western red cedar and Sitka spruce. The complex, multi-layered structure of the old-growth (forest which is older than 200 years), which once covered nearly 70 percent of Western Washington, provided for an astounding assortment of wildlife species which now depend on this specific environment. Logging in the last 80 years has dramatically altered this habitat and only about 10 percent of the western part of our state is now covered by old-growth forest, much of it located in small, isolated patches. Because spotted owls are dependent on old-growth for food, shelter and safety, their populations have declined along with the trees.

The northern spotted owl (formally known as *Strix occidentalis caurina*) is one of three subspecies of spotted owls. It ranges from southern British Columbia to northern California. The other two subspecies, the California and Mexican spotted owls, are found to the south in California, Arizona, New Mexico, Colorado, Utah and Mexico.

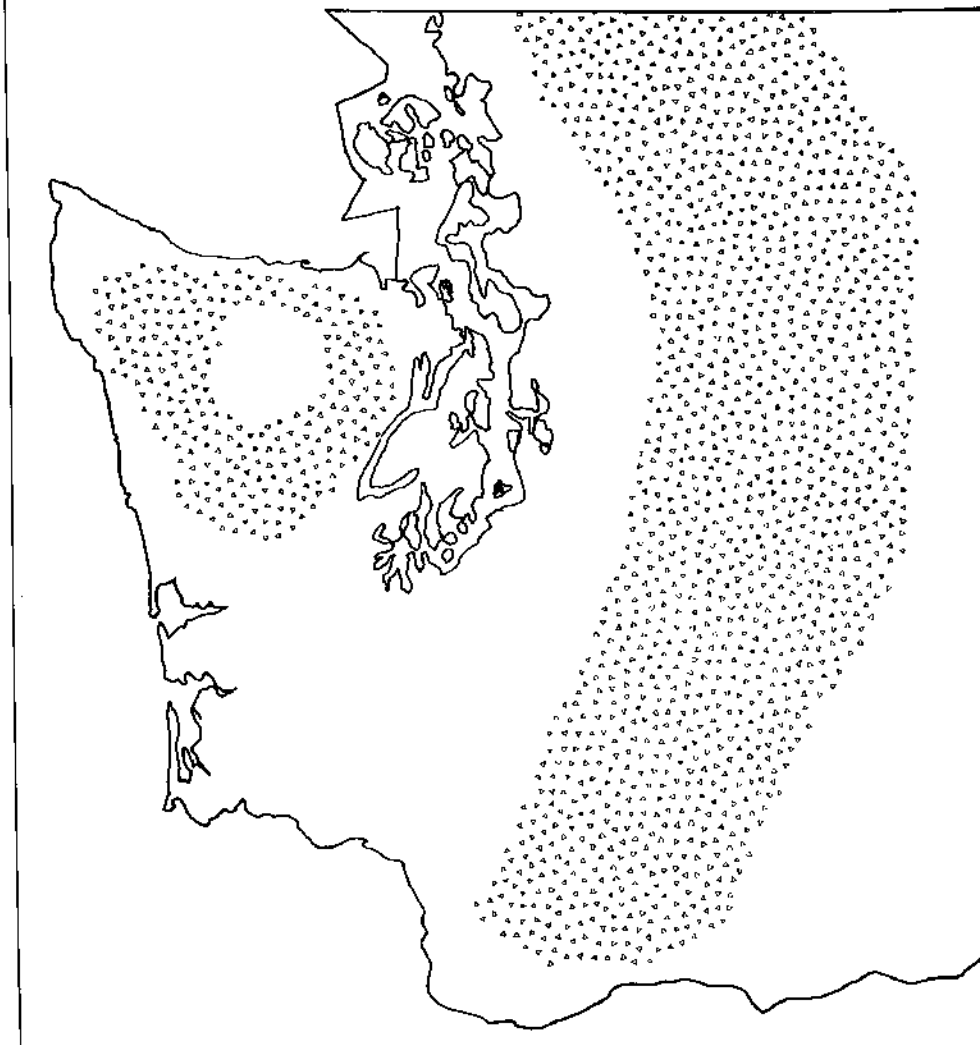
Old growth provides the large old trees the owls need for nesting. Spotted owls select large trees with broken tops and secondary canopies. The cavity formed by the broken top is sheltered by the secondary canopy and provides an ideal spot for the owls to raise their two to three young. They also sometimes use the mistletoe clumps found on the large branches of the older trees and platform nests of other species such as goshawks. Their old-growth habitat also provides food. Species on which the owls prey, primarily the northern flying squirrel and other small mammals, are more abundant and accessible in old-growth forest.

Spotted owls are very susceptible to heat stress. The diverse microclimates of the older forests provide a buffer as summer temperatures begin to soar. When the temperatures climb into the 80's and 90's, the owls can be found in the coolest part of the forest, roosting just a few feet off the ground. In winter, the pattern reverses, and the owls select roost sites on south-facing slopes in full sunlight. The multi-storied canopy and large trees also provide shelter from the rain.

The denseness of old growth gives the owl an additional advantage it can't find in younger stands—protection from its main predator, the great horned owl. Great horned owls are voracious predators but typically hunt only openings and edges of the forest. More clear areas and less dense forest cover have therefore made great horned owls a predatory threat.The barred owl, a non-native species which has been expanding its range from the East and Midwest into the Pacific Northwest, may also become a potential competitor for food and habitat.

The Washington Department of Game became involved with spotted owls in 1981 to obtain specific information on populations in our state. Under the Nongame Program, we began a Spotted Owl Ecology study in 1982 to determine the current population and distribution of spotted owls in Washington, the home range and habitat use patterns of the owls and the characteristics of the habitat types they were using. In 1984 we began a cooperative study with the Forest Service to evaluate the effectiveness of the Spotted Owl Management Area (SOMA) strategy to preserve populations of spotted owls. This is being conducted on

Distribution of the spotted owl in Washington

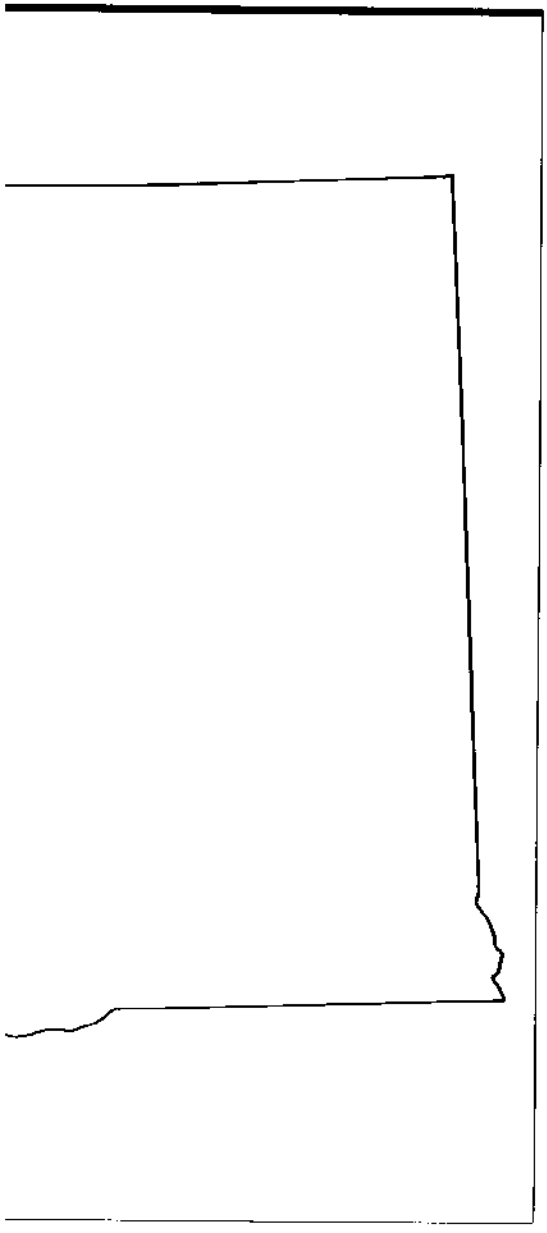


Distribution of spotted owls in Washington is limited to the remaining old growth along the eastern and western slopes of the Cascades and the Olympic Peninsula.

OLD-GROWTH FOREST PHOTO ON PRECEDING PAGES BY DOUG WECHSLER

the three west-side national forests (the Mt. Baker-Snoqualmie, the Gifford Pinchot, and the Olympic). We are looking at the occupancy rates of SOMAs to see if owls are actually in them; how owls are using the areas that have been set aside; and how the areas they use differ from areas they're not using. This study will be completed in 1987.

Many serious problems appear to be developing for the spotted owl with the continued harvest and fragmentation of the old-growth forest habitats. The current population in Washington is estimated to be only about 600 pairs. Oregon estimates about 1,000-1,200 pairs, California estimates about 500 pairs, and British Columbia only knows of five sites where spotted owls still occur. The owls are classified as "threatened" in both Washington and Oregon, and are listed as "endangered" in Canada.



Distribution of spotted owls in Washington is limited to the remaining old growth along the eastern and western slopes of the Cascades and the Olympic Peninsula. Land management and geographic barriers appear to be creating small isolated subpopulations. Large openings such as deforested areas and bodies of water are avoided by spotted owls and seldom crossed; they require some timbered corridors to move from one area to another. The Washington population, we suspect, is genetically isolated from the Oregon population by the Columbia River Gorge and the associated open lands along its banks. Similarly, the population on the Olympic Peninsula is isolated from the Cascade population.

The owls' reproductive rate has suffered as well. 1983 was the only year out of the last four that there was any significant reproduction. Spotted owls are long-lived birds (perhaps 15-20 years) and do not reproduce every year, but the reduced reproductive rate the last four years is unusual. There has also been no reproduction in Oregon (north of Roseburg) during these same years.

Recent studies of juvenile dispersal in Oregon and California have shown a very high mortality rate for the few young that are produced. Most are dying from starvation and predation because the few remaining old-ggrowth stands are too widely separated for them to readily find safe habitat with suitable prey.

As you can see, the spotted owl, and all the other species which depend upon the old-growth forest ecosystem, are faced with problems of survival as old-growth is fragmented and eliminated. It is predicted that, without changes in current logging, the remaining unprotected old growth on National Forest lands alone will be removed within the next 50 years.

Because the spotted owl is the one species which so far has been shown to be dependent on old-growth, the Forest Service has selected it as an

Spotted owls are medium-sized 16-19" forest owls distinguished by large *dark brown* eyes and *mottled* brown and white breast. The only similar owl is the barred owl which also has dark brown eyes but has *vertical streaks* on the breast.

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"indicator species." This means that it serves as a gauge for all the species using old-growth forests. It is clear that the management decisions made for the spotted owl and its habitat not only will determine the fate of that particular species, but also the entire ecosystem in the Pacific Northwest! Resource management agencies in the Pacific Northwest recognize the need for concern and are cooperating in developing timber management that all hope will ensure the long-term survival of the spotted owl.WW

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